HEWLETT-PACKARD COMPANY
Intellectual Property Administration
P.O. Box 272400
Fort Collins, Colorado 80527-2400

PATENT APPLICATION

ATTORNEY DOCKET NO. 10981124-1

IN THE
UNITED STATES PATENT AND TRADEMARK OFFICE

Inventor(s):	**Michael C. FISCHER, et al.**	**Confirmation No.:**	**2129**
Application No.:	**09/923,737**	**Examiner:**	**Ortiz Criado, J. L.**
Filing Date:	**08/06/2001**	**Group Art Unit:**	**2655**

Title: A METHOD AND SYSTEM FOR WRITE CLOCK SYNCHRONIZATION IN A DATA STORAGE SYSTEM

Mail Stop Appeal Brief-Patents
Commissioner For Patents
PO Box 1450
Alexandria, VA 22313-1450

TRANSMITTAL OF APPEAL BRIEF

Transmitted herewith is the Appeal Brief in this application with respect to the Notice of Appeal filed on 12/12/05.

The fee for filing this Appeal Brief is (37 CFR 1.17(c)) $500.00.

(complete (a) or (b) as applicable)

The proceedings herein are for a patent application and the provisions of 37 CFR 1.136(a) apply.

☐ (a) Applicant petitions for an extension of time under 37 CFR 1.136 (fees: 37 CFR 1.17(a)-(d)) for the total number of months checked below:

☐ 1st Month $120	☐ 2nd Month $450	☐ 3rd Month $1020	☐ 4th Month $1590

☐ The extension fee has already been filed in this application.

☒ (b) Applicant believes that no extension of time is required. However, this conditional petition is being made to provide for the possibility that applicant has inadvertently overlooked the need for a petition and fee for extension of time.

Please charge to Deposit Account 08-2025 the sum of $ 500. At any time during the pendency of this application, please charge any fees required or credit any over payment to Deposit Account 08-2025 pursuant to 37 CFR 1.25. Additionally please charge any fees to Deposit Account 08-2025 under 37 CFR 1.16 through 1.21 inclusive, and any other sections in Title 37 of the Code of Federal Regulations that may regulate fees. A duplicate copy of this sheet is enclosed.

☒ I hereby certify that this correspondence is being deposited with the United States Postal Service as first class mail in an envelope addressed to: Commissioner for Patents, Alexandria, VA 22313-1450

Date of Deposit: 02/13/06

OR

☐ I hereby certify that this paper is being transmitted to the Patent and Trademark Office facsimile number (571)273-8300.

Date of facsimile:

Typed Name: Desiree Reardon

Signature:

Respectfully submitted,

Michael C. FISCHER, et al.

By:

Lin C. Hsu

Attorney/Agent for Applicant(s)

Reg No. : 46,315

Date : 02/13/06

Telephone : (408) 938-9060

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

BEFORE THE BOARD OF PATENT APPEALS AND INTERFERENCES

Appellant:	Fischer et al.	Patent Application	
Serial No.:	09/923,737	Group Art Unit:	2655
Filed:	08/06/2001	Examiner:	Ortiz-Criado, J.

For: A Method and System for Write Clock Synchronization in a Data Storage System

Appeal Brief

Table of Contents

	Page
Real Party in Interest	2
Related Appeals and Interferences	3
Status of Claims	4
Status of Amendments	5
Summary of Claimed Subject Matter	6
Grounds of Rejection to be Reviewed on Appeal	8
Arguments	9
Claims Appendix	15
Evidence Appendix	19
Related Proceedings Appendix	20

Real Party in Interest

The assignee of the present invention is Hewlett-Packard Company.

Related Appeals and Interferences

There are no related appeals or interferences known to the Appellant.

Status of Claims

Claims 1-16 stand rejected. Rejections of claims 1-16 are herein appealed.

Status of Amendments

All proposed amendments have been entered. An amendment subsequent to the Final Action has not been filed.

Summary of Claimed Subject Matter

A method for synchronizing newly recorded data with previously recorded data. The method is implemented within a disk-based data storage system. As shown in Figure 2 and described in the Specification on page 10 lines 20-30, a first difference (dto) between a wobble reference signal and previously recorded data is measured. Test data is written on a test track to measure a second difference (dtn) between the wobble reference signal and the test data. The test data is written synchronously with a write clock. An offset value (dtw) is determined by comparing the first difference and the second difference. New data is then written using the write clock and the offset value such that the new data is synchronized with the old data.

In accordance with Independent Claims 1, 6, 11 and 16, one embodiment provides a method for synchronizing newly recorded data with previously recorded data. As shown in Figures 2 and 3 and described in the Specification at page 11 lines 9-25, at 301 a first difference (dto) between a wobble reference signal (twb) and a read clock of previously recorded data (tro). At 302 and 303, test data is written on a test track to measure a second difference (dtn) between the wobble reference signal (twb) and the test data (trn), the test data written synchronous with a write clock.

At 303 a delay offset (dtw) is determined by comparing the first difference (dto) and the second difference (dtn) using the wobble reference signal (twb), such that an appropriate delay offset is calculated utilizing only said wobble reference signal (twb), said read clock of previously recorded data (tro) and said test data (trn). At 304 new data is written using the write clock and the delay

offset (dtw) such that the new data is synchronized with the previously recorded data.

At step 305, the (dtn) of the read clock of the new data is measured. In step 306, the (dtn) of the new data is compared with (dto) of the old data to determine whether any synchronization error is within predetermined limits (e.g., the jitter specification of the reading device's PLL circuits). In step 307, where the synchronization error is outside specification, the new data write clock (dtw) is adjusted accordingly, and process 300 proceeds back to step 304. If the synchronization error is within specification limits, process 300 proceeds to step 308 where the calibration is complete, and new data is written synchronously to the media using the calibrated (dtw).

Grounds of Rejection to be Reviewed on Appeal

1. Claims 1-16 stand rejected under 35 U.S.C. 102(e) as being anticipated by Taussig U.S. Patent No. 6,636,467.

Arguments

1. Whether Claims 1-16 are anticipated under 35 U.S.C. 102(e) by Taussig U.S. Patent No. 6,636,467.

A. Scope and Content of the Cited Prior Art Reference (Taussig)

Taussig is relied upon to anticipate a disk-based data storage system and a method for synchronizing newly recorded data with previously recorded data that utilizes an appropriate delay offset is calculated utilizing only said wobble reference signal, said read clock of previously recorded data and said test data.

The Examiner has stated that Taussig determines a delay offset by comparing the first difference and the second difference using the wobble reference signal, such that an appropriate delay offset is calculated utilizing only the wobble reference signal, the read clock of previously recorded data and the test data, and writing new data using the write clock and the delay offset such that the new data is synchronized with the previously recorded data (see column 5 lines 64 to col. 6 line 21; Fig. 5- 544, 546, 548 and 550; col. 7 line 32 to col. 8 line 24; Fig. 7)

Appellant respectfully states that Taussig does not anticipate the present invention for the following rationale.

Appellant respectfully states that Claims 1, 6, 11 and 16 include the feature "determining a delay offset by comparing the first difference (dto) and the second difference (dtn) using the wobble reference signal (twb), such that an

appropriate delay offset is calculated utilizing only said wobble reference signal (twb), said read clock of previously recorded data (tro) and said test data (trn)." Support for the Claimed feature can be found in Figures 2 and 3 and described in the Specification at page 11 lines 9-25.

Appellant respectfully disagrees that Taussig anticipates the feature of Claims 1, 6, 11 and 16. Appellant understands Taussig to teach a method for determining a delay offset by utilizing a four-measurement method (emphasis added). That is, Appellant understands Taussig to teach finding the delay offset by measuring t_0-the beginning of the data sequence (e.g., head passes address marker 630), t_1-the change in oscillating signal (wobble), t_2-the beginning of the data sequence (e.g., head passes the beginning of the data sequence 640), and t_3-the data channel senses the beginning of the first bit and begins to output an oscillating signal.

While Appellant understands the teachings of Taussig to be an effective and valuable method for measuring offset, Appellant does not understand Taussig to anticipate the method for performing the same measurement using three reference signals instead of using four reference signals. That is, the present Claimed features clearly reduce the size of the equation by one term.

Moreover, as is clearly stated in the Claim features of Claims 1, 6, 11 and 16, Taussig does not anticipate the utilization of the wobble reference as the starting point for the measuring process. Instead, Appellant understands Taussig to clearly show that the measuring begins at the known point of address marker 630.

For example, the equation of the present invention utilizes three variables: **twb**-the wobble reference signal, **tro**-the read clock from the old (previously recorded) data, and **trn**-the read clock from the newly written data (the test data). As is stated in the Claims, the equation for the measured offset **dtw** is then calculated using the three-term equation (trn-tro) = (twb-tro) - (twb-trn). This is clearly supported in Figure 2 and the Specification on page 10 lines 25-32 of the present Application.

For this reason, Appellant respectfully asserts that the basis for rejecting Claims 1, 6, 11 and 16 under 35 U.S.C. § 102(e) as being anticipated by Taussig is overcome.

Additionally, in the response to arguments section (e.g., page 5 of the final OA mailed 10/18/05) the Examiner repeats the statement that Taussig determines an offset by utilizing only three signal measurements (1) the wobble reference signal, (2) the read clock of previously recorded data, and (3) the clock of the test data. For evidence a plurality of references to Taussig are utilized including the bolded and underlined col. 7, lines 31 to col. 8, line 24; Figure 7.

However, Appellant again disagrees with the assertions of the Examiner and respectfully directs attention to both the equations found in column 7, one at line 4 and the other at lines 10-11. Appellant respectfully points out that both equations include variables labeled t_0, t_1, t_2, and t_3. Appellant respectfully points out that the number of variables in both of the equations is not three, but is in fact four.

Therefore, if Taussig utilizes four variables in each equation in the bolded and underlined section, then Taussig obviously does not anticipate the utilization of three variables- wobble reference signal (twb), said read clock of previously recorded data ((tro) and said test data (trn).

Further evidence that Taussig does not anticipate the utilization of three variables can be found in the equations of column 7. Specifically, both of the equations in column 7 provide a four term equation. That is, the equations utilize three terms to solve for a fourth term, e.g., $(t_3-t_1) = (t_2-t_0) + (t_3-t_2) - (t_1-t_0)$. This, as is well known, is the method utilized to solve an equation having four variables. However, in the present claimed invention, a three term equation is used. That is, the equation utilizes two terms to solve for a third term, e.g. (trn-tro) = (twb-tro) - (twb-trn). This, as is well known, is the method utilized to solve an equation having three variables.

Thus, Taussig does not anticipate Claims 1, 6, 11 and 16 which include the feature "such that an appropriate delay offset is calculated utilizing only said wobble reference signal (twb), said read clock of previously recorded data (tro) and said test data (trn)."

For this additional reason, Appellant respectfully asserts that the basis for rejecting Claims 1, 6, 11 and 16 under 35 U.S.C. § 102(e) as being anticipated by Taussig is overcome.

Therefore, Appellant respectfully submits that Taussig does not anticipate the present claimed invention as recited in Claims 1, 6 11 and 16, and as such, Claims 1, 6, 11 and 16 are in condition for allowance. Accordingly, Appellant also respectfully submits that Taussig does not anticipate the present claimed invention as recited in Claims 2-5 which are dependent on an allowable Independent Claim 1, Claims 7-10 which are dependent on an allowable Independent Claim 6, and Claims 12-15 which are dependent on an allowable Independent Claim 11, and that Claims 2-5, 7-10 and 12-15 recite further features of the present claimed invention. Therefore, Appellant respectfully states that Claims 2-5, 7-10 and 12-15 are allowable as pending from allowable base Claims.

In summary, the Appellant respectfully requests that the Board reverse the Examiner's rejections of claims 1-16.

The Appellant wishes to encourage the Examiner or a member of the Board of Patent Appeals to telephone the Appellant's undersigned representative if it is felt that a telephone conference could expedite prosecution.

Respectfully submitted,

WAGNER, MURABITO & HAO LLP

Date: 13 February 2006

Lin C. Hsu

Registration Number: 46,315

WAGNER, MURABITO & HAO LLP
WESTRIDGE BUSINESS PARK
123 WESTRIDGE DRIVE
WATSONVILLE, CALIFORNIA 95076
408-938-9060

Claims Appendix

1. (previously presented) In a disk-based data storage system, a method for synchronizing newly recorded data with previously recorded data, comprising:

measuring a first difference between a wobble reference signal and a read clock of previously recorded data;

writing test data on a test track to measure a second difference between the wobble reference signal and the test data, the test data written synchronous with a write clock;

determining a delay offset by comparing the first difference and the second difference using the wobble reference signal, such that an appropriate delay offset is calculated utilizing only said wobble reference signal, said read clock of previously recorded data and said test data; and

writing new data using the write clock and the delay offset such that the new data is synchronized with the previously recorded data.

2. (Original) The method of Claim 1 further including:

writing the test data to the test track with the delay offset set to zero;

reading the test data from the test track;

subtracting the first difference from the second difference to determine the delay offset for the write clock calibration delay.

3. (Original) The method of Claim 1 further including:

inserting the delay offset into a wobble-to-laser path to cause the new data to have a same epoch as the previously recorded data.

4. (previously presented) The method of Claim 1 further including:

the step of checking whether an error value is within predetermined limits, wherein the error value is the difference between the first difference and the second difference.

5. (Original) The method of Claim 4 further including:

adjusting the write clock in accordance with the error value, if the error value is outside the predetermined limits.

6. (previously presented) A disc based data storage system for editing old data on a disc media with new data, comprising:

means for measuring a first difference between a wobble reference signal and a read clock of previously recorded data;

means for writing test data on a test track to measure a second difference between the wobble reference signal and the test data, the test data written synchronous with a write clock;

means for determining a delay offset by comparing the first difference and the second difference using the wobble reference signal, such that an appropriate delay offset is calculated utilizing only said wobble reference signal, said read clock of previously recorded data and said test data; and

means for writing new data using the write clock and the delay offset such that the new data is synchronized with the previously recorded data.

7. (Original) The system of Claim 6 wherein the means for writing test data on a test track to measure a second difference between the wobble reference signal and the test data, further comprises:

means for writing the test data to the test track with the delay offset set to zero;

means for reading the test data from the test track;

means for subtracting the first difference from the second difference to determine the delay offset for the write clock calibration delay.

8. (Original) The system of Claim 6 wherein the means for writing new data using the write clock and the delay offset such that the new data is synchronized with the old data further includes means for inserting the delay offset into a wobble-to-laser path to cause the new data to have a same epoch as the previously recorded data.

9. (Original) The system of Claim 6 further comprising means for checking whether an error value is within predetermined limits, wherein the error value is the difference between the first difference and the second difference.

10. (Original) The system of Claim 9 further comprising means for adjusting the write clock in accordance with the error value, if the error value is outside the predetermined limits.

11. (previously presented) A disc recorder for implementing a rewrite function for disc media having previously recorded data thereon, comprising:

a disc media having recorded thereon at least one track of previously recorded data; and

a disc reader/recorder device for implementing a method for performing synchronous rewrites onto the disc media, the method comprising:

a) measuring a first difference between a wobble reference signal of the disc media and a read clock of the previously recorded data;

b) writing test data on a test track to measure a second difference between the wobble reference signal and the test data, the test data written synchronous with a write clock;

c) determining a delay offset by comparing the first difference and the second difference using the wobble reference signal, such that an appropriate delay offset is calculated utilizing only said wobble reference signal, said read clock of previously recorded data and said test data; and

d) writing new data using the write clock and the delay offset such that the new data is synchronized with the previously recorded data.

12. (Original) The device of Claim 11 wherein step b) further includes the steps of:

writing the test data to the test track with the delay offset set to zero;

reading the test data from the test track;

subtracting the first difference from the second difference to determine the delay offset for the write clock calibration delay.

13. (Original) The device of Claim 11 wherein step d) further includes the step of inserting the delay offset into a wobble-to-laser path to cause the new data to have a same epoch as the previously recorded data.

14. (Original) The device of Claim 11 further including the step of checking whether an error value is within predetermined limits, wherein the error

value is the difference between the first difference from step a) and the second difference from step b).

15. (Original) The device of Claim 14 further including the step of adjusting the write clock in accordance with the error value, if the error value is outside the predetermined limits.

16. (previously presented) In a disk-based data storage system, a method for synchronizing newly recorded data with previously recorded data comprising:

measuring a first difference between a wobble reference signal and a read clock of previously recorded data;

writing test data on a test track to measure a second difference between the wobble reference signal and the test data, the test data written synchronous with a write clock, wherein the test data is written to the test track with an initial delay offset set to zero;

reading the test data from the test track;

determining an appropriate delay offset by subtracting the first difference from the second difference to determine the appropriate delay offset for the write clock calibration delay, such that an appropriate delay offset is calculated utilizing only said wobble reference signal, said read clock of previously recorded data and said test data; and

writing new data using the write clock and the appropriate delay offset such that the new data is synchronized with the previously recorded data.

Evidence Appendix

None

Related Proceedings Appendix

None